

SANYO Semiconductors DATA SHEET

LA71076SM-

Monolithic Linear IC For VHS VTR Video Signal Processor (Y/C/A single-chip)

Overview

The LA71076SM is a video signal processing system IC that handles VHS VCR format. In addition to conventional video signal processing circuits, it integrates normal audio processing and record/playback FM-EQ circuits on a chip. The LA71076SM is combined with a CCD to create a 2-chip-1-package semiconductor device. Chip internal trimming is used to make this IC adjustment free, further the automatically adjustable comb filter makes the IC fully adjustment free. These features significantly reduces the number of external components, thus streamlining the design of the signal processing board and reducing in the production cost.

Functions

- Fully adjustment free.
- Built-in normal audio processing.
- Built-in and record/playback FM-EQ circuits.
- Built-in NTSC delay-line (LC89961 equivalent).

Specifications

Maximum Ratings at $Ta = 25^{\circ}C$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V _{CC} max		7.0	V
Allowable power dissipation	Pd max	Ta≤75°C *	1040	mW
Operating temperature	Торд		-10 to +75	°C
Storage temperature	Tstg		-40 to +150	°C

*: When mounted on a 114.3×76.1×1.6mm³, glass epoxy board.

Recommended Operating Conditions at $Ta = 25^{\circ}C$

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	VCC		5.0	V
Allowable operating voltage range	V _{CC} op		4.8 to 5.2	V

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Electrical Characteristics at $Ta = 25^{\circ}C$

Recording mode Head Amplifier (T87:5.0V T11:5.0V)

Deremeter	Cumbal	l m	Out	Conditions	T10	T15		Ratings		Linit
Parameter	Symbol	In	Out	Conditions	113	115	min	typ	max	Unit
Rec AGC Amp output	V _R SP	T66A	T83A	Output level when $V_{IN} = 300 \text{mVp-p}$, f = 4MHz		0	127	135	143	mVp-p
level	V _R EP		T89A	Enter by applying DC 3.5V or more to pin 66.		5.0	104	111	119	
Difference of gain between mode	∆GVR			V _R SP/V _R EP			1.40	1.7	2.00	dB
REC AGC AMP	ΔVAGC1-SP	T66A	T83A	Output level/V _R SP, EP with		0		0.5	1.0	dB
control characteristics 1	ΔV _{AGC} 1-EP		T89A	$f = 4MHz$ and $V_{IN} = 700mVp-p$		5.0				
REC AGC AMP	ΔV_{AGC}^2-SP	T66A	T83A	Output level/VRSP, EP with		0	-1.0	-0.5		dB
control characteristics 2	ΔV_{AGC} 2-EP		T89A	$f = 4MHz$ and $V_{IN} = 100mVp-p$.		5.0				
REC AGC AMP	ΔV_FRS	T66A	T83A	The output ratio when f is 1M, 7MHz		0	-1.0	0.0	+1.0	dB
frequency	$\Delta V_F RE$		T89A	as V _{IN} = 300mVp-p.		5.0				
characteristics				7MHz/1MHz (Note 1)						
REC AGC AMP	$\Delta V_{HD}RS$	T13A	T83A	The ratio of the 8Mz (second component) and		0		-45	-40	dB
second harmonic	$\Delta V_{HD}RE$		T89A	4Mz (first component) of the output with		5.0				
distortion				$V_{IN} = 300 \text{mVp-p}$ and f = 4MHz						
REC AGC AMP	∆V _{HD} RS	T66A	T83A	The output level at which the second		0	20	22		mVp-p
maximum output level	$\Delta V_{HD}RE$		T89A	distortion with $f = 4MHz$ is -35dB.		5.0				
REC AGC AMP	$\Delta V_M RS$	T66A	T83A	Output level/VRSP, EP with		0		-45	-40	dB
attenuate volume of	∆V _M RE		T89A	$V_{IN} = 300 \text{mVp-p}$ and f = 4MHz		5.0				
mute										
REC AGC AMP	AVCYS	T66A	T83A	Vin1 = 300mVp-p, f = 4MHz,		0		-45	-40	dB
mixed modulation	ΔVCYE		T89A	Vin2 = 300Vp-p, f = 629kHz (4M±629k)/4M		5.0				
relative level				ratio of output						

Note1: Apply DC of about 1.6V to AGC detection filter terminal (Pin92), and fix the AGC amplifier gain.

Use a resistor with a tolerance of $\pm 1.0\%$ between Pin 93and GND.

PB mode Head Amplifier (T87 = 5.0V T11 = 0V)

			Sumbal In Out			T 10	T 45		Ratings		Unit	
Ра	rameter		Symbol	In	Out	Conditions	113	115	min	typ	max	
Voltage	SP-H	CH1	Gvp1	T82A	T74	$V_{IN} = 38mVp-p, f = 1MHz$	0	0	56.0	59.0	62.0	dB
gain	SP-H	CH2	Gvp2	T85A			5.0	0	56.0	59.0	62.0	
	EP-L	CH3	Gvp3	T88A			0	5.0	56.0	59.0	62.0	
	EP-H	CH4	Gvp4	T91A			5.0	5.0	56.0	59.0	62.0	
Difference	e of		∆Gvp1			Gvp1 - Gvp2			-1	0	+1	dB
voltage g	ain 1											
Difference	e of		∆Gvp2			Gvp3 - Gvp4			-1	0	+1	dB
voltage g	ain 2											
Difference	e of gain		∆Gvp3			Gvp3 - Gvp1			-1	0	+1	dB
between	mode											
Input calc	culation	CH1	V _N IN1	T82A	174	I he ratio of the output which has passed the	0	0		0.7	1.0	μVrms
noise volt	tage	CH2	V _N IN2	T85A		1.1 MHZ LPF and the output without input	5.0	0				
		CH3	V _N IN3	T88A		voltage gain	0	5.0				
		CH4	V _N IN4	T91A		voltage gain.	5.0	5.0				
Frequenc	су	CH1	$\Delta V fp1$	T82A	T74	The ratio of the $V_{IN} = 38mVp-p$,	0	0	-2.5	0		dB
character	ristics	CH2	$\Delta V fp2$	T85A		f = 7MHz output and $Gvp1$, 2, 3, 4.	5.0	0				
		CH3	∆Vfp3	T88A			0	5.0				
		CH4	$\Delta V fp4$	T91A			5.0	5.0				
Seconda	ry	CH1	V _H DP1	T82A	T74	The ratio of 8MHz (second component) and	0	0		-40	-35	dB
harmonic	;	CH2	V _H DP2	T85A		4MHz (first component) of output with	5.0	0				
distortion		CH3	V _H DP3	T88A		$V_{IN} = 38mVp-p$ and f = 4 MHz.	0	5.0				
		CH4	V _H DP4	T91A			5.0	5.0				
Maximum	ı	CH1	V _O MP1	T82A	T74	The output level at which the ratio of 3MHz	0	0	1.0	1.2		Vp-p
output lev	vel	CH2	V _O MP2	T85A		(third component) and 1MHz (first	5.0	0				
		СНЗ	V _O MP3	T88A		component) of the output with $f = 1MHz$.	0	5.0				
		CH4	V _O MP4	T91A			5.0	5.0				

Continued from preceding J	bage.									
D	0		0 /	0	T 10	T 46		Ratings		
Parameter	Symbol	In	Out	Conditions	113	115	min	typ	max	Unit
Cross talk SP1 CH1	V _C R1	T85A	T74	The ratio of output of	0	0		-40	-35	dB
		T88A		V_{IN} = 38mVp-p, f = 4MHz and Gvp1.						
		T91A								
Cross talk SP2 CH2	V _C R2	T82A		The ratio of output of	5.0	0		-40	-35	dB
		T88A	T74	V_{IN} = 38mVp-p, f = 4MHz and Gvp2.						
		T91A								
Cross talk EP1 CH3	V _C R3	T82A	T74	The ratio of output of	0	5.0		-40	-35	dB
		T85A		$V_{IN} = 38mVp-p$, f = 4MHz and Gvp3.						
Cross talk ED2 CH4	VaP4	188A	T74	The ratio of output of	5.0	5.0		40	25	dD
CIUSS LAIK EFZ CH4	VCK4	T854	174	The fallo of output of 4 MHz and Gyp4	5.0	5.0		-40	-35	uБ
		T91A		VIN = 3011VP-p, T = 410112 and $OVP4$.						
Output DC offset			T74	CH1-	0	0	-150	0	+150	mV
	0			CH2	5.0	0		-		
	ΔVODC2			СН3-	0	5.0				
	Ŭ			CH4	5.0	5.0				
	∆V _O DC3			CH1-	0	0				
				CH3	0	5.0				
	ΔV_ODC4			CH2-	5.0	0				
				CH4	5.0	5.0				
	$\Delta V_O DC5$			CH1-	0	0				
				CH4	5.0	5.0				
	∆V _O DC6			CH2-	0	0				
E. day be deter			Too		5.0	5.0			4.0	
Envelope detection	VENV		193	193DC when no input is provided.	50	0	0	0.8	1.3	V
voltage					5.0	50				
vollage					50	5.0				
Envelope detection	VENIVSP1	T82A	T93	When input $f = 4MHz$. T93 DC as becomes	0.0	0.0	2.0	2.5	3.0	V
output terminal				175mVp-p, for T74 output level.	_	-	-	-		
voltage SP1										
Envelope detection	V _{ENV} SP2	T82A	T93	When input f = 4MHz, T93 DC as becomes	0	0	4.0	4.5	5.0	V
output terminal				400mVp-p, for T74 output level.						
voltage SP2										
Envelope detection	V _{ENV} EP1	T89A	T93	When input f = 4MHz, T93 DC as becomes						
output terminal				125mVp-p, for T74 output level.	0	5.0	2.0	2.5	3.0	V
voltage EP1										
Envelope detection	V _{ENV} EP2	T89A	T93	When input f = 4MHz, T93 DC as becomes						
output terminal				300mVp-p, for T74 output level.	0	5.0	4.0	4.5	5.0	V
voltage EP2		.				<u> </u>				
Comparator	VCOMP1	T82A	T94	194 DC voltage	0	0		0.4	0.7	V
output voltage 1	N 0	TOOA	TOA	when $v_{IN} = 38mvp-p$, $t = 4MHz$.	= -		4.5	4.0		
Comparator	VCOMP ²	189A	194		5.0	0	4.5	4.8		V
output voltage 2	1	1	1	when $v_{IN} = 3000 v_{P}$, $t = 400 Hz$.	1					

REC Mode Y

Parameter	Symbol	10	Out	Conditions		Ratings		
Falameter	Symbol	111	Out	Conditions	min	typ	max	Unit
Current dissipation (REC)	I _{CC} R			Measure the sum of currents flowing into pins 21, 54, 56, 57, 75, 87.		160	185	mA
EE output level 2	V _{EE} 2	T42A	T35	With V_{IN} being a 1Vp-p video signal (PAL), measure the output level on T35.	2.00	2.10	2.20	Vp-p
AGC characteristics 1	AGC1	T42A	T35	With V _{IN} being a 2.0Vp-p video signal, measure the ratio of the output level on T35 and V _{EE} 1.	0	0.6	1.2	dB
AGC characteristics 2	AGC2	T42A	T35	With V_{IN} being a 0.5Vp-p video signal, measure the ratio of the output level on T35 and V_EE1.	-1.2	-0.2	0.0	dB
AGC characteristics 3	AGC3	T42A	T35	With V _{IN} being a 700mVp-p luminance, 600mVp-p sync, measure the sync level on T35.	550	650	750	mVp-p
AGC characteristics 4	AGC4	T42A	T35	With V _{IN} being a 700mVp-p luminance, 150mVp-p sync, measure the sync level on T35.	330	380	430	mVp-p
Sync separator output level	VSYR	T42A	T34	With V _{IN} being a 1.0Vp-p video signal, measure the output pulse wave height on T34.	4.0	4.2	4.4	Vp-p
Sync separator output pulse width	PWSYR	T42A	T34	With V _{IN} being a 1.0Vp-p video signal, measure the output pulse width on T34.	4.1	4.4	4.7	μs
Sync separator threshold level	TH _{SYR}	T42A	T34	Gradually reduce the input level, and measure the input level at which the output pulse width is $1\mu s$ or more wider than PWSYR.		-20	-15	dB
H-Sync output level	VH _{SYR}	T42A	Т33	With V _{IN} being a 1.0Vp-p video signal, measure the output pulse wave height on T33.	4.0	4.2	4.4	Vp-р
H-Sync output pulse width	PWHSYR	T42A	T33	V_{IN} = 1.0Vp-p video signal, Measure the output pulse on T33.	4.4	4.7	5.0	μs
Sync tip level Pedestal level White level	LVOR	T42A	T35	With V _{IN} being a 1.0Vp-p video signal, measure the sync tip and pedestal and white level on T35 video output, and take these as LSYN LPED LWHT, respectively.				
Quasi-V insertion level	ΔVDR	T42A	T35	Measure the T35 DC voltage with 4.0V applied to T31, and take this as LVDR, and calculate the difference from LSYN measured above. Δ WHR = LSYN-LVDR	-100	0	100	mV
Quasi-V insertion level	∆HDR	T42A	T35	Measure the T35 DC voltage with 3.0V applied T31, and takes this as LHDP, and calculates the difference from LSYN measured above. Δ HDR = LPED-LHDR	-500	-400	-300	mV
White insertion level	ΔWHR	T42A	T35	Measure the T35 DC voltage with 2.0V applied to T31. and take this as LWHP, and calculate the difference from LWHT measured above. Δ WHR = LWHT-LWHR	500	600	700	mV
Edge insertion level	∆EGR	T42A	T35	Measure the T35 DC voltage with 1.2V applied toT31.and take this as LWHP, and calculate the difference from LPED measured above. Δ WHR = LPED-LEGR	-500	-400	-300	mV
Y LPF frequency characteristics (1)	Y _{LPF} 1	T42A	T26	With V_{IN} being a standard multi-burst signal (1Vp-p), measure the 1MHz response to a 500kHz signal on T26.	-0.6	-0.1	0.4	dB
Y LPF frequency characteristics (2)	Y _{LPF} 2	T42A	T26	With V _{IN} being a standard multi-burst signal (1Vp-p), measure the 2MHz response to a 500kHz signal on T26.	-1.3	-0.3	0.7	dB
Y LPF frequency characteristics (3)	Y _{LPF} 3	T42A	T26	With V _{IN} being a standard multi-burst signal (1Vp-p), measure the 3MHz response to a 500kHz signal on T26.	-8.0	-6.0	-4.0	dB
Y LPF frequency characteristics (5)	Y _{LPF} 5	T42A	T26	With $V_{\mbox{\rm IN}}$ being a standard multi-burst signal (1Vp-p), measure the 3.58MHz response to a 500kHz signal on T26			-25	dB

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Paramotor	Symbol	In	Out	Conditions		Ratings		Unit
Farameter	Symbol		Out	Conditions	min	typ	max	Unit
REC-FM modulator output level	V _{FM}		T66	Measure the T66 output level with no input.		300	360	mVp-p
Carrier frequency	F _{FM} 2		T66	Measure the output frequency on T66 with no input.	3.36	3.46	3.56	MHz
REC-FM output second distortion	HMOD		T66	Measure the second distortion with the above state.		-40	-35	dB
Deviation 2	DEV2	T42A	T66	With V _{IN} being a 100% white 1Vp-p signal, measure the deviation on T66.	0.95	1.00	1.05	MHz
FM modulator linearity	LMOD	T25	T66	Assume that f2.85 is the output frequency when 3.85VDC is applied to T25. $LMOD = \frac{f2.85 - (f3.1 + f2.6)/2}{f3.1 - f2.6} \times 100$	-2	0	2	%
1/2 fH carrier shift	CS	T13	T66	The output frequency change	6.5	8.2	9.5	kHz
Emphasis gain	GEMP	T25A	T23	With V _{IN} being a 500mVp-p 10kHz sine wave, measure the ratio of the levels on T25A and T23.	-0.75	-0.25	0.25	dB
Detail enhancer characteristics (1)	G _{ENH} 1	T25A	T23	With V _{IN} being a 158mVp-p 2MHz sine wave, measure the ratio of the levels on T25A and T23, and calculate the difference from GEMP.	1.5	2.0	2.5	dB
Detail enhancer characteristics (2)	G _{ENH} 2	T25A	T23	With V_{IN} being a 50mVp-p 2MHz sine wave, measure the ratio of the levels on T25A and T23, and calculate the difference from GEMP.	3.5	4.5	5.5	dB
Detail enhancer characteristics (3)	G _{ENH} 3	T25A	T23	With V _{IN} being a 15.8mVp-p 2MHz sine wave, measure the ratio of the levels on T25A and T23, and calculate the difference from GEMP.	4.3	5.8	7.3	dB
Nonlinear emphasis characteristics (1)	G _{NL} EMP1	T25A	T23	With V_{IN} being a 500mVp-p 2MHz signal measure the ratio of the levels on T25A and T23, and calculate the difference from GEMP.	-3.0	-2.0	-1.0	dB
Nonlinear emphasis characteristics (2)	G _{NL} EMP2	T25A	T23	With V_{IN} being a 158mVp-p 2MHz signal measure the ratio of the levels on T25A and T23, and calculate the difference from GEMP.	2.5	4.0	5.5	dB
Nonlinear emphasis characteristics (3)	G _{NL} EMP3	T25A	T23	With V_{IN} being a 50mVp-p 2MHz signal measure the ratio of the levels on T25A and T23, and calculate the difference from GEMP.	5.0	6.5	8.0	dB
Main linear emphasis characteristics (1)	G _M E1	T25A	T23	With V_{IN} being a 50mVp-p 500kHz sine wave, measure the ratio of the levels on T25 and T23, and calculate the difference from GEMP.	10.0	11.5	12.0	dB
Main linear emphasis characteristics (2)	G _M E2	T25A	T23	With V_{IN} being a 50mVp-p 2MHz signal measure the ratio of the levels on T25A and T23, and calculate the difference from GEMP.	17.0	18.5	20.0	dB
White clipping level	Lwc	T42A	T23	With V_{IN} being a 1.0Vp-p 100% white video signal, measure the white clipping level on T23.	180	190	200	%
Dark clipping level	LDC	T42A	T23	With V_{IN} being a 1.0Vp-p 100% white video signal, measure the dark clipping level on T23.	-52	-50	-47	%

REC Mode EQ

Deremeter	Cumb of	la.	Out	Conditions		Ratings		
Parameter	Symbol	In	Out	Conditions	min	typ	max	Unit
REC EQ	G _{REQ} 1	T36A	T66	With V _{IN} being a CW 2MHz, 400mVp-p signal, measure the	-5.7	-4.5	-3.3	dB
characteristics 1				input/output response.				
REC EQ	G _{REQ} 2	T36A	T66	With V _{IN} being a CW 4MHz, 400mVp-p signal, measure the	-4.0	-2.7	-1.4	dB
characteristics 2				input/output response.				
REC EQ	G _{REQ} 3	T36A	T66	With V _{IN} being a CW 750kHz, 400mVp-p signal, measure the			-20	dB
characteristics 3				input/output response.				
REC EQ	H _{REQ}	T36A	T66	Measure the second harmonic in the above conditions.		-40	-15	dB
2'nd distortion								

PB Mode Y

						Ratings		
Parameter	Symbol	In	Out	Conditions	min	typ	max	Unit
Current dissipation (PB)	ICCP			Measure the sum of the currents flowing into pins 21, 54, 56, 57, 75, and 87.	160	170	180	mA
Dropout	TDOC	T74A	T35	T74A: 4MHz 300mVp-p sine wave +3VDC	10.0	13.0	15.0	Н
compensation Period		T25A		T25A: 0.5Vp-p video signal				
1H for one horizontal				The I/O response 5H after the T74A input is set to 0.				
synchronization period	0000	7744	TOF		4.5	0	4.5	-ID
DOC characteristics	GDOC	174A	135	T74A: 4MHZ 300mVp-p sine wave +3VDC	-1.5	0	1.5	aв
		1254		The time from the instant when the T74A input level is set to 0				
				to the time point when the T35 output is restored.				
PB Y level	V-YOUT	T74A	T35	DEV = 1.0MHz PB Y level when input FM signal is input.	2.00	2.10	2.20	Vp-p
Self R/P, PB-Y level	R/P-OUT	T74A	T35	Self R/P-Y, PB-Y level	1.93	2.10	2.27	Vp-p
FM demodulator	LDEM	T74A	T26	VDEM4 - (VDEM3 + VDEM5)/2	-3.5	0	+3.5	%
linearity				$LEDM = \frac{1}{VDEM5 - VDEM3} \times 100$				
				*\/DEM4 $=$ DC: T26 (Input 4MHz 200m)(n n)				
Carrier leakage	CL	T74	T26	VDEWI4 = DC. 120 (Input 4WHz, S00HVp-p)			-35	dB
	D	T25A	T25	Measure the ratio of 22fH component and 22 ffH	0 5	7 5	-55	dD
characteristics	- YNR	TZGA	135		-0.0	-7.5	-0.5	uБ
Nonlinear de-emphasis	G _{NI} DE1	T25A	T35	With VINI being a 50% white video f = 2MHz, 158mVp-p sine	-3.5	-2.5	-1.5	dB
characteristics (1)	NL			wave, measure the I/O response.				
*Serial-control								
Nonlinear de-emphasis	G _{NL} DE2	T25A	T35	f = 2MHz, 50mVp-p	-6.0	-4.5	-3.0	dB
characteristics (2)								
Double	G _{WNC} 1	T25A	T35	f = 1.4MHz, 158mVp-p	3.5	-2.5	-1.5	dB
noisecanceller								
Double	GWNC2	T25A	T35	f = 1 4MHz 50mVp-p	-12	-10	-8	dB
noisecanceller	OWNC2	120/1	100		12	10	0	üD
characteristics (2)								
Double	G _{WNC} 3	T25A	T35	f = 1.4MHz, 15.8mVp-p	-15	-13	-11	dB
noisecanceller								
characteristics (3)								
Sync separator	VSYP	T25A	Т34	With V _{IN} being a 0.5Vp-p video signal, measure the output	4.0	4.2	4.4	Vp-p
Sync separator	PWoyp	T254	T34	With Visi being a 0.5Vp-p video signal measure the output	41	44	47	115
output pulse width	1 1151P	120/1	104	pulse width on T34.	7.1		4.7	μο
H-Sync output level	VHSYP	T25A	T33	With V _{IN} being a 0.5Vp-p video signal, measure the output	4.0	4.2	4.4	Vp-p
				pulse wave height on T33.				
H-Sync output	PWHSYP	T41	T33	With $V_{\mbox{\scriptsize IN}}$ being a 0.5Vp-p video signal, measure the output	4.4	4.7	5.0	μs
pulse width				pulse width on T33.				
Sync tip level	LVOR	T25A	T35	With V _{IN} being a 100% white 0.5 Vp-p signal, measure the				
White level				sync tip and pedestal and white levels on 135 video output, and				
Quasi-V insertion		T25A	T35	Measure the T35 DC voltage with 4 0V applied to T31 and take	-100	0	100	mV
level	2.2.			this as LVDP, and calculate the difference from LSYN		Ŭ		
				measured above.				
				$\Delta VDP = LSYN-LVDP$				
Quasi-H insertion	∆HDP	T25A	T35	Measure the T35 DC voltage with 3.0V applied to T31, and take	-500	-400	-300	mV
level				this as LHDP, and calculate the difference from LPED				
White insertion	ΛWHP	T25A	T35	Measure the T35 DC voltage with 2 0V applied to T31 and take	500	600	700	mV
level		0, (this as LWHP, and calculate the difference from LWHT	500	500		
				measured above.				
				ΔWHP = LWHT-LWHP				
Edge insertion	∆EGP	T25A	T35	Measure the T35 DC voltage with 1.2V applied to T31, and take	-500	-400	-300	mV
level				this as LEGP, and calculate the difference from LPED				
				measured above.				
A)/ regulator	\/		Ter		2.0	4.0	4.0	14
4v regulator	[∨] REG		165	weasure the 165 DC level.	3.9	4.0	4.3	V

PB mode EQ T72 = 5V

Demonster	Oursels al	1	0t	Conditions		Ratings		Unit
Parameter	Symbol	IN	Out	Conditions	min	typ	max	Unit
PB EQ	G _P EQ1	T28A	T23	With V _{IN} being a CW 4MHz, 300mVp-p signal, measure the	1.5	3.0	4.5	dB
characteristics 1				input / output response.				
*Serial-control								
PB EQ	HPEQ	T28A	T23	Measure the second harmonic in the above condition.		-40	-30	dB
2'nd distortion								
PB EQ	G _P EQ2	T28A	T23	With V _{IN} being a CW 4MHz, 300mVp-p signal, measure the			-30	Vp-p
characteristics 2				input / output response				
PB EQ Trap	f _P EQ	T28A	T23	With V _{IN} being a 300mVp-p signal, measure			-25	dB
characteristics				high-band trap frequency and gain.				
				(Using network analyzer)				

PB mode S discrimination

Devenuetor	Symbol In Out Conditions		Qualitizat	Ratings			Unit	
Parameter	Symbol	IN	Out	Conditions		typ	max	Unit
Output voltage	VNDETN	T74	T32	V _{IN} = 300mVp-p f:4MHz +3VDC	0	0.2	0.5	V
when normal VHS								
Output voltage	VS _{DET} S	T74	T32	V _{IN} = 300mVp-p f:6MHz +3VDC	4.4	4.7	5.0	V
when S-VHS								
S-discrimination	VSDET	T74	T32	Input level at which no mis-discrmination occurs while changing	50			mVp-p
input level				T74 input level.				
Normal-discrimination	VNDET	T74	T32	Input level at which no mis-discrmination occurs while changing	50			mVp-p
input level				T74 input level.				
Normal \rightarrow	FSDETNS	T74	T32	The frequency at which T32 becomes H when the sine wave	5.5	6.0	6.5	MHz
S-discrimination				input to T74 is increased from $f = 4MHz$.				
threshold level								
$S \rightarrow normal$	FSDETSN	T74	T32	The frequency at which T32 becomes L when the sine wave	5.0	5.5	6.0	MHz
discrimination				input to T74 is increased from f = 5MHz.				
threshold level								

REC mode chroma	T16 - 5V T11	-5V T55 $-0V$	T59 - 0V T72 - 5V
	110 - 3v, 111	-3v, 133 - 0v	, 139 - 00, 172 - 30

		Í.				Ratings		
Parameter	Symbol	In	Out	Conditions	min	typ	max	Unit
REC chroma low frequency conversion output level	VOR-66	T42A	T66	With V _{IN} being the standard color bar signal (1Vp-p), measure the burst level on T66.	600	750	900	mVp-p
Burst emphasis	GBE	T42A	T66	With V _{IN} being the standard color bar signal $(1Vp-p)$ calculate the ratio of the T66 burst levels for SP/EP(T59 = 0V/5V) and LP(T59 = 2.5V) modes.	5.5	6.0	6.5	dB
VXO oscillation level	V _{VXO} -RN	T42A	T62	With V_{IN} being the standard color bar signal (1Vp-p), measure the T62 output amplitude with an FET prob	290	430	690	mVp-p
REC ACC characteristics (1)	ACC _R 1	T42A	T66	With V _{IN} being the standard color bar signal (1Vp-p), increase only the chroma signal level by +6dB, measure the T66 burst level, and calculate its ratio with VOR-66.		+0.2	+0.5	dB
REC ACC characteristics (2)	ACC _R 2	T42A	T66	With V _{IN} being the standard color bar signal (1Vp-p), decrease only the chroma signal level by -6dB, measure the T66 burst level, and calculate its ratio with VOR-66		-0.1		dB
REC ACC killer-on input level	V _{ACCK} -ON	T42A	T66	With V _{IN} being the standard color bar signal (1Vp-p), decrease the chroma signal and measure the input burst level at which T66 output ceases. Calculate the ratio of this value with the standard input level.		-26		dB
REC ACC killer-on output level	V ₀ ACCK	T42A	T66	Measure the T66 output level with a spectrum analyzer in the killer state of the above item and calculate its ratio with VOR-66.		-60	-50	dB
REC ACC killer restored input level	V _{ACCK} -OFF	T42A	T66	From the killer state of the above item gradually increase the input chroma level and measure the input burst level at which T66 output reappears. Calculate its ratio with the standard input level		-20		dB
REC APC pull-in range (1)	∆f _{APC} 1	T42A	T66	Input a signal consisting of a 3.5795MHz 300mVp-p CW added to a 50% white signal. After confirming that a signal is output from T66, increase the CW frequency until T66 output ceases. Now slowly reduce the CW frequency, and determine f1 frequency at which T66 output reappears.				Hz
REC APC pull-in range (2)	^{∆f} APC ²	T42A	T66	As in the previous item, decrease the CW frequency until T6 output ceases. Now slowly increase the CW frequency and determine f2 frequency at which T66 output reappears. $\Delta f_{APC}2 = f2-3579545$ (Hz)	i		-350	Hz
REC AFC pull-in range (1)	∆f _{AFC} 1	T42A	T60	Input a 300mVp-p, 15.7kHz, 5 μ s width pulse train (negative polarity). After increasing the pulse train frequency until the T60 wave form is disrupted, decrease the frequency to determine the f1 pulse train frequency at which the T60 wave form returns to normal. Δ fAFC1 = f1-15.734 (kHz)				kHz
REC AFC pull-in range (2)	^{∆f} AFC ²	T42A	T60	As in the previous item, decrease the pulse train frequency until the T60 wave form is disrupted, then increase the frequency to determine the f2 pulse train frequency at which the T60 wave form returns to normal. $\Delta f_{AFC}2 = f2-15.734 (kHz)$			-1.0	kHz
The ratio of the REC	C/FM2	T42	T66	The ratio of 100% chroma's level which was $T68 = 0V$		8.0		dB
modulator output				converted to low band and FM modulatorT68 = $2.5V$ output level.T72 = $0V$ T68 = $5V$		6.7 5.3		dB dB

PB mode chroma T16 = 0V, T11 = 0V, T55 = 0V, T59 = 0V, SW25 = 2

Deremeter	Cumbal	10	0	Conditions		Ratings		Unit
Parameter	Symbol	In	Out	Conditions	min	typ	max	Unit
PB chroma video	NVop-35	T74A	T35	Apply a mixture of the SP mode chroma signal	510	600	690	mVp-p
output level		T25A		(SP mode, burst 100mVp-p) that was obtained by converting				
				the T74A NTSC chroma noise test signal to the low band and				
				the 4 MHz, 300 mVp-p sine wave to T74 through 3 V bias.				
				Apply the 50% white signal (321.5mVp-p) from T25A. Measure				
				the T35A burst level.				
PB chroma pin 72	Vop-72	T74A	T72	Measure the burst level with the same conditions as those for		200		mVp-p
output level		T25A		NVop-35.				
PB ACC	ACC _P 1	T74A	T72	With the conditions used for NVop-35, increase the input		+0.5	+0.8	dB
characteristics (1)		T41A		chroma level by +6dB, measure the burst level on T72, and				
				calculate the ratio with Vop-72.				
PB ACC	ACC _P 2	T74A	T72	With the conditions used for NVop-35, decrease the input	-0.5	-0.2		dB
characteristics (2)		T25A		chroma level by -6dB, measure the burst level on T72, and				
				calculate the ratio with Vop-72.				
PB killer-on	VACK-P	T74A	T72	With the conditions used for NVop-35, the input chroma level			-25	dB
input level		T25A		until output from T72 cease and measure the input burst level				
				at that point.				
				(Calculate the ratio with the standard input 100mVp-p signal)				
PB killer-on	V _O ACK-P	T74A	T35	Measure the T35A chroma output with a spectrum analyzer in		-44	-40	dB
chroma output level		T25A		the killer state of the previous item. Calculate its ratio with				
				NVop-35.				
PB main converter	CLP	T74A	T35	With the conditions used for NVop-35, measure the T58A with		-40	-33	dB
carrier leakage		T25A		a spectrum analyzer, and calculate the ratio of the 3.58MHz				
				component and the 4.21MHz carrier leakage component.				
Burst de-emphasis	GBD	T74A	T72	Apply the mixture of the low-band chroma signal of 629kHz,	-5.25	-5.00	-4.75	dB
		T25A		burst 100mVp-p, and chroma 125mVp-p and the sine wave of				
				4MHz and 300mVp-p.				
				Apply the 50% white signal from T25A.				
				Measure burst and chroma amplitudes of T72 and accume				
				them as B and C respectively.				
				$GBD = 20LOG(125 \times B)/(100 \times C)$				
PB XO output level	V _{XO} -PN		T62	Measure the output level on T62 with an FET probe.	230	380	600	mVp-p
PB XO oscillator	$\Delta f_{XO}N$		T62	In PB mode, let f be the measured frequency on T62.	-7	0	+7	Hz
frequency deviation				$\Delta f_{XO}N = f-3579545(Hz)$				
PB Chroma	PTHD ²	T74A	T35	With the conditions used for NVOP-35, measure the T35 with a			-25	dB
2'Fsc distortion		T25A		spectrum analyzer, and calculate the ratio of the 3.58MHz				
				component and the 7.16MHz component.				

AUDIO REC mode T55 = 0V, T59 = 0V, T17 = 5V

Deremeter	Cumbal	10	0t	Conditions		Ratings		
Parameter	Symbol	In	Out	Conditions	min	typ	max	
Voltage gain	VGR	T98	T7	V _{IN} = -20dBV	13.5	14.0	14.5	dB
Distortion ratio	THDR	T98	T7	V _{IN} = -20dBV	0.01	0.1	0.4	%
Maximum output voltage	V _O MR	T98	T7		0.8	1.0	1.1	Vrms
Voltage conversion recording bias current	VBIAS		Т6	SW99 = ON	270	300	330	mVrms
Recording bias current control voltage	VCTL		Т6	SW99 = ON	2.9	3.2	3.5	V

AUDIO PB/EE mode T55 = 0V, T59 = 0V, T17 = 2.5V

Devenueter	Ourseland	1	Out	Conditions	Ratings			L Los it
Parameter	Symbol	In	Out	Conditions		typ	max	Unit
LINE AMP	VGLP	T100A	T96A	V _{IN} = -30dBV T12 = 0V, T17 = 0V	22.5	23.0	23.5	dB
Voltage gain (PB)								
LINE AMP	VGLR	T76A	T96A	V _{IN} = -30dBV T12 = 0V, T17 = 2.5V	22.5	23.0	23.5	dB
Voltage gain (A1)								
LINE AMP	THDL	T100A	T96A	V _{IN} = -30dBV = 0V, T17 = 0V	0.01	0.1	0.4	%
Distortion ratio (PB)								
LINE AMP	V _N OL		T96A	Rg = 1K Ω , DIN Audio filter T12 = 0V, T17 = 0V	-80.0	-74.0	-70.5	dBV
Output noise voltage				SW76 = 2				
LINE AMP	V _O ML	T100A	T96A	THD = 1% T12 = 0V, T17 = 0V	0.8	1.0	1.1	dBV
Maximum								
output voltage								
LINE AMP	V ₀ A	T76A	T96A	T76A = -28dBV T12 = 0V, T17 = 2.5V	-7.0	-6.0	-5.0	dBV
Output voltage								
when ALC								
LINE AMP	ALC	T76A	T96A	T76A = -28 to -8dBV T12 = 0V, T17 = 2.5V	0.0	1.0	3.0	dB
Effect of ALC								
LINE AMP	THDA	T76A	T96A	T76A = -28dBV T12 = 0V, T17 = 2.5V	0.01	0.1	0.5	%
Distortion ratio								
of when ALC								
MUTE attenuation	MPB	T100A	T96A	T100A = -10dBV T12 = 5V, T17 = 0V	80	90	120	dB
(PB, A1, A2, A3)	M _{A1}	T76A		T76A = -10dBV T12 = 5V, T17 = 2.5V	80	90	120	dB
EQ AMP Open loop	VGOF	T4A	T1	V _{IN} = -66dBV T12 = 0V, T17 = 0V, SW3 = ON	58.0	64.0	70.0	dB
voltage gain	02							
EQ AMP	V _{NIE}		T1	Rg = 620Ω , DIN Audio filter T12 = 0V, T17 = 0V	0.1	1.0	1.8	μVrms
Input conversion								
noise voltage								

CCD block SW47	= 2, SW49 =	= 2						
Deremeter	Cumhal	10	0			Ratings		
Parameter	Symbol	In	Out	Conditions	min	typ	max	Unit
Voltage Gain	Gv	T49	T49A	T47:200kHz, 500mVp-p SW49B=ON -1.5 0.5 2.5 Ratio of level of T49A relative to T47A. -1.5 0.5 2.5		2.5	dB	
Frequency Response	Gf	T47 T47B	T49A	T47B: Adding 250mV higher bias than pin 47 clamp level. Ratio -2 -1 of 3.58MHz component toward to T49A 200kHz. -1		0	dB	
Deferential Gain	DG	T47	T49B	T47: Stair step signal (500mVp-p)	0	5	8	%
Deferential Phase	DP	T47	T49B	T47: Stair step signal (500mVp-p) 0 5		8	deg	
Linearity	LS	T47	T49B	T47: Stair step signal only for Y (500mVp-p) V/S Ratio of T49B.		40	43	%
Clock leakage	Lck		T49A	A SW49B:ON 10 4fsc component of T49A.		50	mVrms	
Noise	NO		T49A	SW49B:ON Measure T49A using a Video noise meter. Filter condition: HPF = 200kHz, LPF = 4.2MHz,		1	2	mVrms
Output Impedance	ZO	T47	T49A	19A T47:200kHz,500mVp-p, Assuming that the T49A amplitude 80 230 under conditions of SW49B = ON/OFF is T49A (ON) and T49A (OFF) respectively, and calculate as follows: 20 Z0 = {{ T49A(OFF)-T49A(ON) } / T49A(ON) }> 500. 20 20		480	Ω	
Delay time	TD	T47	T49B	T47:100% white (500mVp-p) Calculate T49B delay time toward to T47 input. * Except for reversing Amp and delay time		63.35		μs

Package Dimensions

unit : mm 3252A



Block Diagram and Sample Application Circuit



Pin F	unctions			
Pin No.	Pin name	DC voltage	Signal wave form	Input/Output form
1	EQ-OUT	REC: 2.3V	DC	
		PB: 2.3V	CW 95mVp-p	
2	EQ-SW2	REC: 2.3V	DC	
		PB: 2.3V	CW 95mVp-p	СМР05257
3	EQ-NFB	REC: 2.3V	DC	
		PB: 2.3V	CW 1mVp-p	
4	EQ-IN	REC: 2.3V	DC	
		PB: 2.3V	CW 1mVpp	
5	EQ-SW1	REC: 2.3V	DC	Vref
		PB: 2.3V	SP/LP: AC GND EP: CW 1mVp-p	
6	AUTO BIAS-IN	REC: 2.3V	CW 1.4Vp-p +70KHz 850mVp-p	6 500Ω REC LP/EP:ON PB EP :ON
		PB: 2.3V	DC	лл лл ОМР05259
7	AUDIO- REC-OUT	REC: 2.3V	CW 1.4Vp-p	POWER ON :ON POWER OFF:ON
		PB: 2.3V	DC	
8	HA REC CTL	REC:	DC	20.5kΩ
		PB:	DC	(8)
9	NC			

Continue	d from preceding pag	ge.		T
Pin No.	Pin name	DC voltage	Signal wave form	Input/Output form
10	NC CTL	REC: 2.5V PB: 2.5V	DC DC	
11	HA R/P CTL	REC: 1 to 5V PB: 0 to 1V	5V: REC 2.5V: R-MUTE 0: PB	7/7 7/7 7/7 OMP05262 11 20kΩ I I1 W I II I I III III III III IIII IIII IIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
12	AUDIO MUTE CTL	REC: 0/5V PB: 0/5V	MUTE = 5V	
13	RF_SW_IN	REC: 0/1V PB: 0/1V	0V	13 200Ω W G G G G G M OMP05266
14	C-ROT IN	REC: 0/1V PB: 0/1V	1V 0V	(14) 200Ω 14 ₩ 14 14 14 14 14 14 14 14 14 14
15	HA SW IN	REC: 0/1V PB: 0/1V	1V 1V 1V 1V 0V	(15) 200Ω ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩

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Pin No.	Pin name	DC voltage	Signal wave form	Input/Output form
16	YC R/P CTL	REC: 5V PB: 0V	5V: REC 0V: PB	16 5kΩ 16 5kΩ 0001 0000
17	AUDIO R/P CTL	REC: 5V PB: 0V	5V: REC 2.5V: EE 0V: PB	17 5KΩ 17 77 77 000 17 77 000 00005270
18	COMB THROUGH CTL	REC: 1.7V PB: 1.7V		18 18 20kΩ 0MP05271
19	DOC/XO CTL	REC: 0V/5V PB: 0V/5V	5V: XO MODE 0V: NORMAL 5V: DOC OFF 0V: DOC AUTO	(19) → → → → → → → → → → → → →
20	FM FILT	REC: 1.8V PB: 1.8V	DC DC	
21	Y-Vcc	5V	Vcc	
22	PHASE EQ Q-CTL	REC: 1.0V	DC DC	<u>зоока</u> <u>зоока</u> <u>с</u> <u>с</u> <u>с</u> <u>с</u> <u>с</u> <u>с</u> <u>с</u> <u>с</u> <u>с</u> <u>с</u>

Pin No	Pin name	c. DC voltage	Signal wave form	Input/Quitout form
23	CTI -AMP	RFC: 2.5V		
20	OUT	PB: 2.5V		
24	MAIN- EMPHA FILT	REC: 2.1V		
		PB: 2.1V		2.7KΩ 2.7KΩ 620Ω 520Ω 520Ω MP05278
25	CLAMP-IN	REC: 2 .8V		
		PB: 2.8V		
26	MAIN DEEMPHA -OUT1	REC: 2.1V		20013 20013 20013
		PB: 2.1V	500mVp-p 2.1V	
27	Y-GND	0V	GND	
28	MAIN DEEMPHA -OUT2	REC: 2.1V	500mVp-p 2.1V	9001 20011
		PB: 2.1V		

Continue	d from preceding pag	ge.		
Pin No.	Pin name	DC voltage	Signal wave form	Input/Output form
29	PHASE EQ F ₀ CTL	REC: 1.0V	DC	
		PB: 1.0V	DC	
30	TRICK /CG CTL	REC	5V: CG OFF 0V: CG ON	
		РВ	5V: TRICK 0V: NORMAL PB	Т. Т. Т. Т. Т. Т. Т. ОМР05283
31 QV/QH-INS	QV/QH-INS	REC: 0 to 5V	0V : Through 1.0V: 20IRE INS 2.0V: 60IRE INS 3.0V: QH INS V _{CC} : QV INS	
		PB: 0 to 5V		
32	S-DET OUT	REC: 0V	DC	
		PB: 4.2/0.2V	DC SVHS: 4.2V VHS: 0.2V	32 32 32 32 32 32 32 32 32 32
33	H-SYNC OUT	REC: 0V	4.0V	
		PB: 0V	4.0V	
34	C.SYNC OUT	REC:	4.2V 0V	
		PB:	4.2V 0V	

Continue	a from preceding pag	ge.		
Pin No.			Signal wave form	Input/Output form
35	VIDEO-OUT	PB: 0.8V	2.1∨p-p ↓ 0.8∨ 2.1∨p-p ↓ 0.8∨ 0.8∨	REG(4V) τ τ τ τ τ τ τ τ τ τ τ τ τ
36	EQ CTL	REC: 1.0V	DC	
		PB: 1.0V	DC	2
37	AGC TC2	REC: 2.0V PB: 2.0V	DC DC	
38	VIDEO-IN3	REC: 1.8V	1.0Vp-p	
		PB: 1.8V	1.0Vp-p	
39	AFC2-FILT	REC: 3.5V		
		PB: 3.5V	→ →	

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Pin No.	Pin name	DC voltage	Signal wave form	Input/Output form
P40	VIDEO-IN2	REC: 1.8V PB: 1.8V	↑1.0Vp-p ↓ 1.8V	
			1.8V	
P41	SYNC DET FILT	REC 4.9V NO-SIG: 0.3V	DC	
		PB: 4.9V NO-SIG: 0.3V		→ → → → → → → → → → → → → →
P42	VIDEO-IN1	REC: 1.8V	1.8V	
		PB: 1.8V	1.8V	ОМР05298
P43	VCA-FILT (Phase)	REC: 2.8V	DC	
		PB : 2.8V	DC	
P44	VCA-IN	REC: 2.7V	↓ ↓ ↓ 2.7V	60kg 60kg 15kg 2kg 15kg
		PB: 2.7V	400mVp-p ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	

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PIN NO.	Pin name		Signal wave form					
45	VCA- FILT(Gain)	PB: 2.9V	DC					
46	CCD-DRIVE	REC: 1.9V	400m)/n n	OMP05301				
		PB: 1.9V	400mVp-p ↓					
47	7 CCD INPUT REC:							
		PB :	350mV	OMP05306				
48	CCD-V _{SS}	0V	V _{SS}					
49	DELEY OUT	REC:						
		PB:		49 ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
50	CCD-V _{SS}	0V	V _{SS}					
51	CLOCK IN	REC:	↑ 300mV					
		PB:	100mV	ОМР05311				
52	VCO FILT	REC: 2.5V	DC	52 + w + w				
		PB: 2.5V	DC	омро5312				

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Pin No.	Pin name	DC voltage	Signal wave form	Input/Output form
53	4FSC OUT	REC: 1.5V	↑ 1.4V	
		PB: 1.5V	↑ 1.4V ↓	
54	CCD-V _{DD}	5V	V _{DD}	
55	VIDEO INPUT CTL	REC: 2.5V	0 to 1V: VIDEO1 2 to 3V: VIDEO2 4 to V _{CC} : VIDEO3	
		PB: 2.5V		Gy G
56	C-V _{CC}	5V	Vcc	
57	ALWAYS ^V CC	5V	Vcc	
58	SLD-FILT	REC:	DC	
		PB:	DC	
59	SP/LP/EP	REC: 5V: EP OPEN: LP 0V: SP		
		PB : 5V: EP OPEN: LP 0V: SP		G ↓ G ↓ TTT TTT TTT OMP05317

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Pin No.	Pin name	DC voltage	Signal wave form	Input/Output form
60	AFC/APC-FILT	REC: PB:		
			V V ←→→ 1Field	
61	XO IN	REC: 4.0V	400mVp-p	$\begin{array}{c} 200\Omega \\ 200\Omega \\ 200\Omega \\ 200\Omega \\ 61 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ $
		PB: 4.0V	400mVp-p	
62	XO OUT	REC: 2.5V	400mVp-p	
		PB: 2.5V	400mVp-р	Give monotonic of the second s
63	REC APC-FILT	REC: 1.8V	DC	
		PB: 1.8V	DC	Gradient Contraction of the second se

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Pin No.	Pin name	DC voltage	Signal wave form	Input/Output form
64	AGC-TC1 /BALANCER	REC: 1.9V	DC	
		PB: 2.3V		REC
65	REG4.0V	REC: 4.0V		
		PB: 4.0V		
66	REQ monitor	REC: 1.7V	300mVp-p	
		РВ:	DC	Ф
67	C-GND	0V	GND	
68	REC-C-CTL	REC: 2.3V PB: 2.3V	REC-C-LEVEL 0 to 1.0V :270mVp-p 1.8 to 2.7V:320mVp-p 3.5 to 5.0V:380mVp-p	68 5kΩ 68 777 OMP05330
69	KIL FILT	REC: PB: 1.8V		CMP05331

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Pin No.	Pin name	DC voltage	Signal wave form	Input/Output form
70	ACC FILT	REC: 1.8V PB: 1.8V	DC DC	Crave C
71	REC CURRENT-2	REC: 2.25	DC	
		PB: 2.25	DC	₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩
72	PB C MONI	REC: 2.5V		
		PB: 2.5V	150mVp-p	200Ω 72 200Ω 72 72 72 72 72 72 72 72 72 72
73	REC CURRENT-1	REC: 2.25	DC	73 − 5kΩ +
		PB: 2.25	DC	₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩
74	HA monitor	REC: -		
		PB: 2.0V	FM 300mVp-p	ОМР05338
75	AUDIO V _{CC}	5.0V	V _{CC}	
76	AUDIO IN-1	REC: 3V	CW 95mVp-p	Vref
		г D . 3V	Сий эршир-р	500Ω '٦ 7/7 OMP05339

Continue	d from preceding pag	ge.	[
Pin No.	Pin name	DC voltage	Signal wave form	Input/Output form
77	ALC DET	REC	DC	
		PB: 0V	DC	С С С С С С С С С С С С С С
78	AUDIO IN-2	REC: 3V	CW 95mVp-p	Vref Gradient Constraints of the second sec
		PB: 3V		(78)
79	VREF	REC: 2.3V	DC	500Ω 500Ω 500Ω 500Ω 500Ω
		PB: 2.3V	DC	
80	AUDIO IN-3	REC: 3V	CW 95mVp-p	
		PB: 3V		(80)
81	HEAD AMP GND	0V	GND	
82	PBEPL+	REC: 4.1V		
		PB: 1.8V		THE STATE OMPO5345
83	PBEPL-	REC: 4.1V	SP 13mAp-p EP 10mAp-p	
		PB: 1.8V	FM 0.5mVp-p	OMP05346

Continue	d from preceding pag	ge.		
Pin No.	Pin name	DC voltage	Signal wave form	Input/Output form
84	PBEPH-	REC: 4.1V PB: 1.8V	SP 13mAp-p EP 10mAp-p FM 0.5mVp-p	
				Смро5347
85	PBEPH+	REC: 4.1V		
		PB: 1.8V	FM 0.5mVp-p	OMP05348
86	HEAD AMP GND	0V	GND	
87	HEAD AMP ^V CC	5V	VCC	
88	PBSPL+	REC: 4.1V PB: 1.8V	FM 0.5mVp-p	B B B C C C C C C C C C C C C C C C C C
89	PBSPL-	REC PB:	SP 13mAp-p EP 10mAp-p FM 0.5mVp-p	

Continued	i from preceding pag	ge.		
Pin No.	Pin name	DC voltage	Signal wave form	Input/Output form
90	PBSPH-	REC PB:	SP 13mAp-p EP 10mAp-p FM 0.5mVp-p	W + + + + + + + + + + + + + + + + + + +
91	PBSPH+	REC: 4.1V		л. л. л. _{ОМР05351}
		PB: 1.8V	FM 0.5mVp-p	JAN HANDERSTEIN OMPO5352
92	AGC FILT	REC: 1.6V	DC	
		PB: -		тт тт омро5353
93	ENV DET OUT	REC		
		PB 0.5 to 4.8V	DC	93
94	COMP OUT	REC: 0.7V	DC	
		PB: - TRICK PB: 0.5V/4.5V	TRICK MODE HA SW OUT	(94) - Μ 300Ω

Continue	ntinued from preceding page.						
Pin No.	Pin name	DC voltage	Signal wave form	Input/Output form			
95	AUDIO GND	0V	GND				
96	6 AUDIO REC: 2.3V CW 1.4Vp-p LINE OUT		CW 1.4Vp-p				
		PB: 2.3V	CW 1.4Vpp	₩ 96 100kΩ 100kΩ 100kΩ 0MP05356			
97	ALC DET IN	REC: 0V	CW 600mVp-p				
		PB: 0V	GND	от ти ллт омро5357			
98	AUDIO REC IN	REC: 0V	CW 280mVp-p	$\begin{array}{c} \bullet \\ \bullet \\ \hline \\ 98 \end{array} \xrightarrow{21k\Omega} \\ 10k\Omega \\ \hline \\ W \\ W$			
	PB: 0V GND		GND	скор скор			
99	AUTO BIAS OUT	REC: 4.3V	DC				
		PB: 5V	DC	Gg ≷ 777 777 OMP05359			
100	AUDIO PB IN	REC: 2.3V	Half-wave rectified wave form (70kHz)				
		PB: 2.3V	CW 95mVp-p	100			

Function Control Table

Pin No.	Function	L (to 0.5V)				H (4.0V to)			
12	AUDIO MUTE	OFF				ON			
19	REC: XO MODE		NORMAL			XO MODE			
	PB: DOC OFF	[DOC AUTO			DOC OFF			
30	PB: TRICK		NORMAL				TRICK		
	REC: COPY GUARD		ON				OFF		
Pin No.	Function		L (to 0.5V)				H (1.0V to)	
13	RF SW PULSE		L				Н		
14	C ROT PULSE		L				Н		
15	HA PULSE		L				Н		
Pin No.	Function	to 0.7V	1.1V to 3.	3V	1.7V to 2.3V	2.7	7V to 3.3V	3.7V to	
31	CHARACTER INSERT	THROUGH	EDGH		CHARA		QH	QV	
			25IRE		40IRE	IRE 25IRE		SYNC	
Pin No.	Function	L (to 0.5)	√)	M (2.0 to 2.8V OR OPEN)		H (3.6V to)			
16	REC/EE/PB (Y/C)	PB		REC					
17	REC/EE/PB (Audio)	PB			EE			REC	
55	INPUT SELECT	IN-1			IN-2			IN-3	
59	TAPE SPEED	SP		LP			EP		
68	REC C-LEVEL	+1.5dB		STANDARD		-1.5dB			
71	REC: REC-CURRENT-2	LOW		STANDARD		MAX			
73	REC: REC-CURRENT-1	LOW		STANDARD		MAX			
10	NC CTL	MAX		STANDARD		LOW			
Pin No.	Function		L (to 0.5V)	O		OPEN OR H (4.0V to)			
18	COMB THROUGH CONTROL	KIL+SP-REC-NO-CO)RR		KIL+SP-REC			
Pin No.	Function	L (to 0.5V)			H (4.0V to))	
8	REC-I ARRANGEMENT	SP-CI		RE SP/		SP/	/EP SAME CURRENT		
Pin No.	Function	L (to 0.5)	V)		M (2.5V)		H (4.0V to)		
11	REC/PAUSE/PB (Head Amp)	PB		REC PAUSE REC		REC			

Test Mode Control

Pin No.	Function	Contents
22	Phase EQ Q adjust/Y-test	PULL-UP = Y-test
23	EQ monitor/R-EQ slope control	PULL-UP = REC EQ slope is changes to slant
29	Phase EQ F0 adjust/F-test	PULL-UP = F-test
36	PB EQ Low side band CTL/REC EQ in	REC EQ external signal: input with bias (3.5V)
66	REC ENV monitor/Head Amp in	Head Amp external signal: input with bias (3.5V)
72	PB-C monitor/FM Mute & Child Lock /Sync Slice Level	PULL-UP = REC: FM mute at pin66 R/P pin23 changes to TEST mode Child Lock mode
74		additional resistor to GND: Sync Slice Level changes to Pedestal side.
74	PB Head Amp monitor/ENV in	External ENV signal: input with bias (3.5V)

Test Circuits



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